

State the domain, range, holes, vertical asymptotes, and horizontal asymptotes.

1.  $f(x) = \frac{1}{x^2}$

Domain:

Range:

Holes:

Vertical Asy:

Horizontal Asy:

2.  $f(x) = \frac{3}{(x-2)^3}$

Domain:

Range:

Holes:

Vertical Asy:

Horizontal Asy:

3.  $f(x) = \frac{x^2+2x}{-x^2+2x}$

Domain:

Range:

Holes:

Vertical Asy:

Horizontal Asy:

4.  $f(x) = \frac{x^2+2x+1}{2x^2-x-3}$

Domain:

Range:

Holes:

Vertical Asy:

Horizontal Asy:

5.  $f(x) = \frac{x^2-25}{x^2+5x}$

Domain:

Range:

Holes:

Vertical Asy:

Horizontal Asy:

6.  $f(x) = \frac{-5x^2-14x+3}{2x^2+7x+3}$

Domain:

Range:

Holes:

Vertical Asy:

Horizontal Asy:

7.  $f(x) = \frac{3x^2+x-5}{x^2+1}$

Domain:

Range:

Holes:

Vertical Asy:

Horizontal Asy:

8.  $f(x) = \frac{x^2-4}{x+3}$

Domain:

Range:

Holes:

Vertical Asy:

Horizontal Asy:

9.  $f(x) = \frac{4x+1}{x}$

Domain:

Range:

Holes:

Vertical Asy:

Horizontal Asy:

10.  $f(x) = \frac{2x^2-5x+2}{2x^2-7x+3}$

Domain:

Range:

Holes:

Vertical Asy:

Horizontal Asy:

11.  $f(x) = \frac{4x}{x^2-1}$

Domain:

Range:

Holes:

Vertical Asy:

Horizontal Asy:

12.  $f(x) = \frac{x^3+8}{x^2-4}$

Domain:

Range:

Holes:

Vertical Asy:

Horizontal Asy: